RULE 132 DECLARATION

In re application:
Hiroshi Dairiki et al.
Application No. 10/523,106
Application Filed: August 6, 2003
For: AGRICULTURAL CHEMICAL COMPOSITION IN GRANULAR FORM

DECLARATION UNDER 37 CFR 1. 132

Honorable Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

I, Tetsutaro Kai, am a researcher in the field of agrochemical formulation. I am a Japanese citizen, and I hereby declare and state that I have technical knowledge relating to the subject application.

I declare that I received a graduate degree as Master of Engineering in March, 2002, from the Graduate School of Ehime University.

I also declare that I have been employed by NIPPON SODA CO., LTD., the Assignee of this application, since 2002 and that I am presently working as a researcher for Odawara Research Center of the Assignee, Odawara-city, Kanagawa prefecture, Japan.

I further declare that I have read the entire contents of the Office Action issued on January 29, 2008 against the above patent application, and that I have read and am familiar with the references cited in the Office Action by the Examiner.

I declare further that I conducted the following experiment, and that the test results are true and correct to the best of my knowledge.

I understand that the granulated pesticidal composition recited in current Claim 1 of the subject application comprises "a lignosulfonate surfactant with a degree of sulfonation of at least 2.0" as an ingredient. Even taking the cited prior arts into consideration, to the best of my knowledge, there is no prior art, i.e. no publication as early as the priority date of the present

application, which reports that a degree of sulfonation of a lignosulfonate surfactant results in advantageous effects on properties such as dispersibility of a water-dispersible pesticidal composition.

I believe that the subject specification is the first publication that discloses a significant effect to improve dispersibility of water-dispersible pesticidal compositions provided by use of a lignosulfonate surfactant with a degree of sulfonation of at least 2.0 as an ingredient thereof. To further clarify the effect provided by the claimed invention, I additionally conducted the following experiment.

I prepared two samples of water-dispersible granules: Samples 1 and 2 as indicated below:

Ingredients	Trade name	Sample 1	Sample 2
cyflufenamid	-	3.7	3.7
triflumizole	-	16.6	16.6
Sodium dodecyl benzenesulfonate	LUNOX P-65L	0.35	0.35
Sodium lignosulfonate (degree of sulfonation: 4.7)	REAX 100M	5.25	-
Sodium lignosulfonate (degree of sulfonation: 0.5)	POLYFON-H	-	5.25
Polyethylene (polymerization degree: 9) tristyrylphenyl ether sulfate ammonium salt	TPP-08011	3.5	3.5
Anhydrous sodium sulfate	-	0.15	0.15
urea	-	1	1
Potassium chloride	-	10	10
clay	Crown Clay	59.45	59.45

(given in percentage by weight)

Sample 1 including a lignosulfonate surfactant with a degree of sulfonation of at 4.7 corresponds to the claimed invention. Sample 1 was prepared by the following

procedure. Cyflufenamide (4.64%), triflumizole (20.82%) and clay (74.55%) were mixed and pulverized in a jet mill (trade name: Ulmax, Nisso Engineering, Co., Ltd.).

The pulverized mixture (79.75%; corresponding to cyflufenamide (3.7%), triflumizole (16.6%) and clay (59.45%)) was mixed with sodium dodecylbenzenesulfonate (0.35%), anhydrous sodium sulfate (0.15%), urea (1%), potassium chloride (10%), polyoxyethylene (polymerization degree: 9) tristyrylphenyl ether sulfate ammonium salt (3.5%; absorbed on White Carbon, 50% content), and sodium lignosulfonate (5.25%; degree of sulfonation: 4.7). Water (26.4%) was added, and the resulting mixture was kneaded, and extrusion-granulated by use of a 0.7 mm screen. The resulting granules were dried at 40° C for 24 hours and screened to collect Sample 1 as the fraction remaining between 0.59 and 0.84 mm mesh.

Sample 2 is a comparative example, which was prepared in substantially the same manner as the procedure described above, provided that sodium lignosulfonate with a degree of sulfonation of 0.5 was used instead of that with a degree of sulfonation of 4.7, and 29.3% of binding water was used instead of 26.4 parts of water.

I assessed these samples in the following manner:

Test tubes were charged with 100 mL of water (hardness: 36 mg/L) to form a water column of ca. 180 mm high from the bottom of the tubes leaving an open space of ca. 30 mL at the top thereof. The sample prepared as stated above was slowly added into the test tube and assessed for the following properties.

(1) Self-dispersibility:

The granules of Sample 1 started to disperse in the water column before reaching a depth of ca. 90 mm from the surface. On the other hand, the granules of Sample 2 did not start to disperse before reaching a depth of ca. 90 mm from the surface, but started to disperse before reaching the bottom.

(2) Number of tube inversions required for dispersion in water:

Thirty seconds after the granules were added in the water column, the test tube was inverted repeatedly up to 20 times at a rate of once per 2 seconds to measure the number of tube inversions required for complete dispersion of the granules.

The granules of Sample 1 were completely dispersed by inversion 3 to 5 times. After the tube inversions, the granules were entirely disintegrated and dispersed uniformly to form an aqueous dispersion with high suspensibility.

On the other hand, granules of Sample 2 were not entirely disintegrated by inversion 20 times, and after the tube inversions, particles that were not dispersed remained. The suspensibility thereof was low.

(3) Sediment volume:

After the assessment described above, the tubes were repeatedly inversed an additional 30 times at a rate of once per 2 seconds, and then the volume of sediment formed after 30 minutes was measured. Only a trace amount of sediment was formed in the test tube of Sample 1, while sediment (0.1 mL) was formed in the test tube of Sample 2.

In light of the assessments (1) to (3), Sample 1 exhibits significantly improved dispersibility, compared with that of Sample 2. Dispersibility of formulated granules in water is one of most important properties for water-dispersible pesticidal compositions, and therefore the experiment clearly indicates that the claimed invention provides an advantageous effect.

I believe that even a person skilled in the art would not conceive of the effect of the subject invention, and therefore, there was no teaching or suggestion to motive a person skilled in the art to use a lignosulfonate surfactant with a degree of sulfonation of at least 2.0 as an ingredient.

For the reasons stated above, I strongly believe that the claimed invention of the subject application is not

obvious over the cited prior art, and that it should therefore be allowed.

I declare further that all statements made herein of my own knowledge are true and that all statements made on the basis of information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

June 19, 2008 Tetsutaro Kai

Date Tetsutaro Kai